WHAT IS CLAIMED IS:

1. A frequency agile variable bandwidth radio frequency (RF) transceiver comprising:

an RF input/output stage for input of an RF signal from an antenna during a receive mode and for output of an RF signal to an antenna during a transmit mode:

an RF splitter for splitting the input RF input signal into a first RF signal and a second RF signal:

a direct digital synthesis and control (DDS) circuit including a programmable oscillator;

an in-phase component polyphase filter for filtering and bandlimiting said first RF signal under the control of said DDS circuit to generate a first output bandlimited signal;

a quadrature component polyphase filter for filtering said second RF signal under the control of said DDS circuit to generate a second output bandlimited signal; and

a baseband processor for demodulating said first and second output bandlimited signals to generate an output digital signal comprising a plurality of data bits.

2. The RF transceiver of Claim 1, wherein said in-phase component polyphase filter comprises a first switched capacitor filter, and wherein said quadrature component polyphase filter comprises a second switched capacitor filter.

3. The RF transceiver of Claim 2, wherein said first and second switched capacitor filters operate 90 degrees out of phase from each other, and wherein each said switched capacitor filter includes a mixer element which operates to convert the RF signal to a baseband frequency.

4. The RF transceiver of Claim 1, further comprising a third polyphase filter coupled to said baseband processor and said DDS for modulating digital data bits in a transmit mode to generate an output RF signal for coupling to an antenna.

5. The RF transceiver of Claim 4, wherein said third polyphase filter comprises a third switched capacitor filter.

6. A frequency agile variable bandwidth radio frequency (RF) transceiver comprising:

an RF input/output stage for input of an RF signal from an antenna during a receive mode and for output of an RF signal to an antenna during a transmit mode:

an RF splitter for splitting the input RF input signal into a first RF signal and a second RF signal:

a direct digital synthesis and control (DDS) circuit including a programmable oscillator;

an in-phase component polyphase switched capacitor filter for filtering and bandlimiting said first RF signal under the control of said DDS circuit to generate a first output bandlimited signal;

a quadrature component polyphase switched capacitor filter for filtering said second RF signal under the control of said DDS circuit to generate a second output bandlimited signal;

a mixer coupled to the output of each said switched capacitor filter and operative to tune the output of said respective filter; and

a baseband processor for demodulating said first and second output bandlimited and tuned signals to generate an output digital signal comprising a plurality of data bits.

7. A frequency agile variable bandwidth radio frequency (RF) transceiver comprising:

an RF input/output stage for input of an RF signal from an antenna during a receive mode and for output of an RF signal to an antenna during a transmit mode:

an RF splitter for splitting the input RF input signal into a first RF signal and a second RF signal:

a direct digital synthesis and control (DDS) circuit including a programmable oscillator;

a first sigma-delta modulator coupled to said first RF signal to bandlimit, translate, and sample said first RF signal under the control of said DDS circuit to generate a first output bandlimited signal;

a second sigma-delta modulator coupled to said second RF signal to bandlimit, translate, and sample said second RF signal under the control of said DDS circuit to generate a second output bandlimited signal; and

a baseband processor for demodulating said first and second output bandlimited and tuned signals to generate an output digital signal comprising a plurality of data bits.

8. A method for generating a frequency agile variable bandwidth radio frequency (RF) transceiver comprising the steps of:

detecting an RF signal from an antenna during a receive mode and for output of an RF signal to an antenna during a transmit mode:

splitting the input RF input signal into a first RF signal and a second RF signal:

filtering and bandlimiting said first RF signal using an in-phase component polyphase filter to generate a first output bandlimited and tuned signal;

filtering said second RF signal using a quadrature component polyphase filter to generate a second output bandlimited and tuned signal; and

demodulating said first and second output bandlimited and tuned signals to generate an output digital signal comprising a plurality of data bits.